WHAT IS CLAIMED IS:

1. A tire pressure indicator installed in one tire of a motor vehicle and adapted to indicate the tire pressure of the tire, the tire pressure indicator comprising:

a hollow annular pressure cell, said hollow annular pressure cell having one side fixedly concentrically fastened to an inner side of the rim of said tire, an opposite side provided with a diaphragm that displaces subject to the condition of the tire pressure of said tire;

a displacement sensor mounted in the wheel axle holder supporting said tire and adapted to detect axial displacement of said diaphragm and to produce a corresponding modulated signal;

a signal processor electrically connected to said displacement sensor and adapted to provide excitation signal to said displacement sensor and to process the outputted modulated signal from said displacement sensor into a corresponding tire pressure signal through a series of processing processes including demodulating, filtering, amplifying and scaling;

a pressure display electrically connected to said signal processor and adapted to display the value of the tire pressure signal outputted from said signal processor; and

a link tube connected between said hollow annular pressure cell and said tire to keep the internal air pressure of said hollow annular pressure cell in balance with the internal air pressure of said tire.

2. The tire pressure indicator as claimed in claim 1, wherein said hollow annular pressure cell has an air hole adapted to accommodate one end of said link tube.

3. The tire pressure indicator as claimed in claim 1, wherein said hollow annular pressure cell is rotatable synchronously with said tire.

4. The tire pressure indicator as claimed in claim 1, wherein said hollow annular pressure cell comprises an annular mounting face an annular inductive face disposed in parallel to said annular mounting face, and one set of the tubular outer and inner wall supporting said annular mounting face and said annular inductive face, said tubular outer and inner wall having a peripheral edge sealed to said annular mounting face and said annular inductive face to form said hollow annular pressure cell and an air hole accommodating one end of said link tube.

5. The tire pressure indicator as claimed in claim 1, wherein said hollow annular pressure cell is comprised of said diaphragm, which is a corrugated member stamped from a thin sheet of stainless steel, a frame stamped

from a thick stainless steel plate, and an annular mounting base, said diaphragm having a peripheral edge sealed to inner and outer walls of said frame and defining with said frame and said annular mounting base an annular air chamber.

6. The tire pressure indicator as claimed in claim 1, wherein said displacement sensor detects the position of said diaphragm upon high speed rotation of said hollow annular pressure cell with said tire and converts detected signal into corresponding tire pressure signal.

7. The tire pressure indicator as claimed in claim 1, wherein said hollow annular pressure cell is a pressure-to-displacement linear converter.

8. The tire pressure indicator as claimed in claim 1, wherein said displacement sensor is a contactless eddy current inductive sensor.

9. The tire pressure indicator as claimed in claim 1, wherein the air volume of said hollow annular pressure cell is $V_{air}=(R_o^2-R_i^2)x\,\pi\,xL_d$; R_o and R_i are radius of outer wall and inner wall of said hollow annular pressure cell; L_d is the axial length of said hollow annular pressure cell and when the pressure changes in said hollow annular pressure cell, the value of change can be skip; the air volume change of said hollow annular pressure cell is an one-dimensional linear relation:

$\triangle V_{air}=Ax\triangle L_d$, or $\triangle L_d=A^{-1}x\triangle V_{air}$;

$A=(R_o^2-R_i^2)x\pi$, which is the cross sectional area of said hollow annular pressure cell that is a constant.

10. The tire pressure indicator as claimed in claim 1, wherein the position G of the diaphragm of said hollow annular pressure cell is linearly sensitive to the internal pressure P of said hollow annular pressure cell in axial direction, i.e., $P= K_1 xG$, $K_1=P/G$, K_1 is the coefficient of conversion or transfer ratio of said hollow annular pressure cell; said displacement sensor outputs a modulated signal V_{sig} subject to the position G of said diaphragm, i.e., $G= K_2 xV_{sig}$, $K_2 =G/ V_{sig}$, K_2 is the coefficient of conversion or transfer ratio of said displacement sensor, so that:

$P= K_1x K_2 xV_{sig}=Kx V_{sig}$;

$K= K_1x K_2 =P/V_{sig}=Px V_{sig}^{-1}$, k is the system transfer ratio or coefficient of conversion of the tire pressure indicator.